

NOTES ON BASE

This is one map in a series of topographic map sheets covering the entire surface of Mars at nominal scales of 1:25,000,000 and 1:5,000,000 (Bates, 1973). The major source of map data was the Mariner 9 television experiment (Mausky and others, 1970).

ADOPTED FIGURE

The figure of Mars used for the computation of the map projection is an oblate spheroid (flattening of 1/192) with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

PROJECTION

The polar stereographic projection is used for this sheet, with a scale of 1:5,290,000 at lat 45°. Longitudes increase to the west in accordance with usage of the International Astronomical Union (IAU, 1971). Latitudes are areographic (de Vaucouleurs and others, 1973).

CONTROL

Planimetric control is provided by photographic triangulation using Mariner 9 pictures (Davies, 1973; Davies and Arthur, 1973) and the radio-tracked position of the spacecraft. The first meridian passes through the crater Airy-O (lat 5.1° S) within the crater Airy. No simple statement is possible for the precision, but local consistency is about 10 km.

MAPPING TECHNIQUE

Selected Mariner 9 pictures, transformed to the polar stereographic projection, were assembled in a mosaic at 1:5,000,000.

Shaded relief was copied from the mosaic and portrayed with uniform illumination with the sun to the west. Many Mariner 9 pictures besides those in the base mosaic were examined to improve the portrayal (Levinthal and others, 1973). The shading is not generalized and may be interpreted with photographic reliability (Inge, 1972).

Shaded relief analysis and representation were made by Jay L. Inge.

COLOR

No attempt was made on the map to precisely duplicate the color of the Martian surface, although the color used does approximate it.

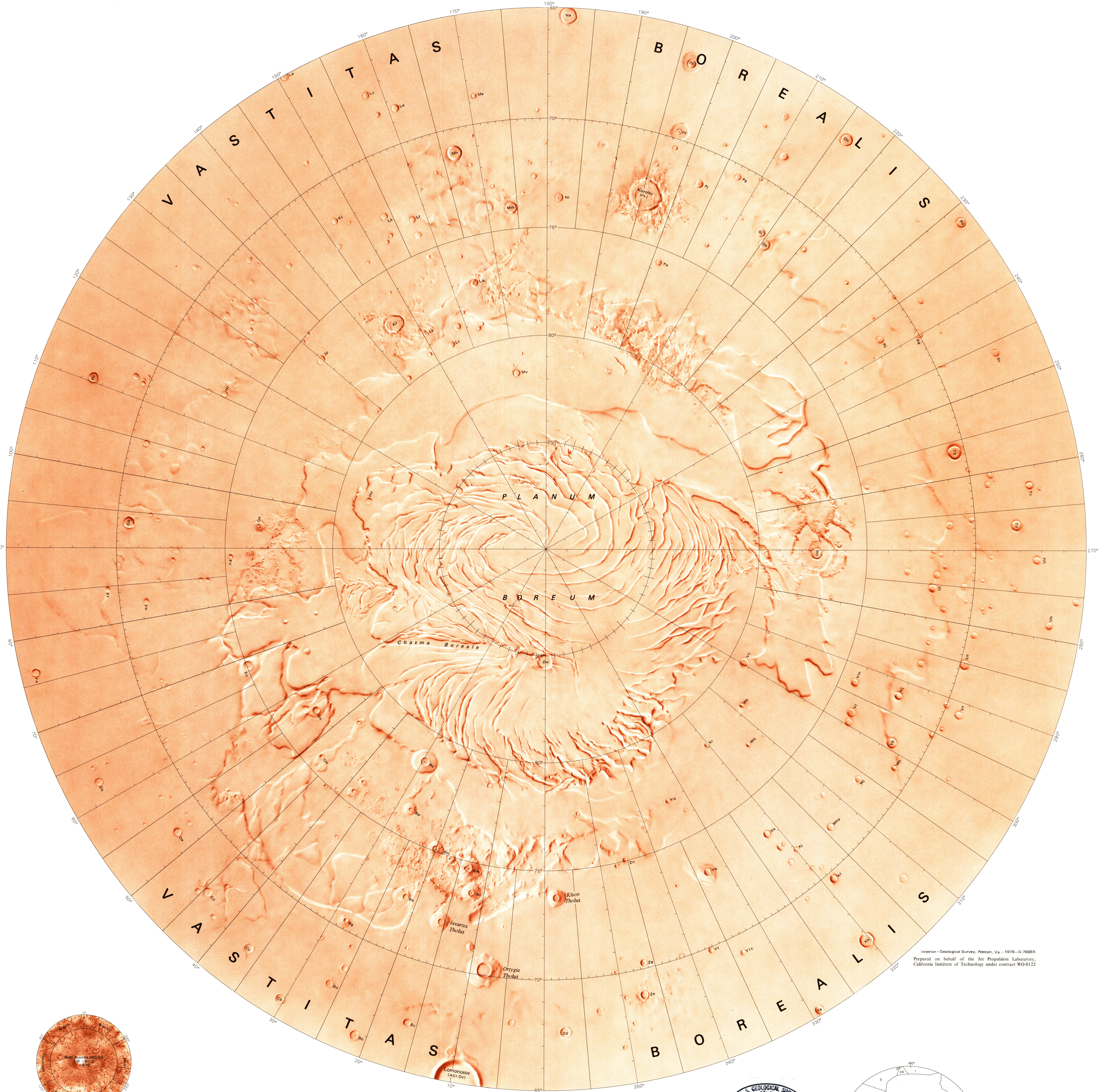
NOMENCLATURE

All names on this sheet are approved by the International Astronomical Union (IAU, 1974; Millman, written communication, 1975). Double and triple letter designations for craters refer to position on the map. Some craters have commemorative names; letter designations for these craters are shown in parentheses. Where craters lie mostly on an adjoining map, their letters are derived from the other map; where craters lie exactly on the boundary of two maps, their letters are derived from the eastern or southern map.

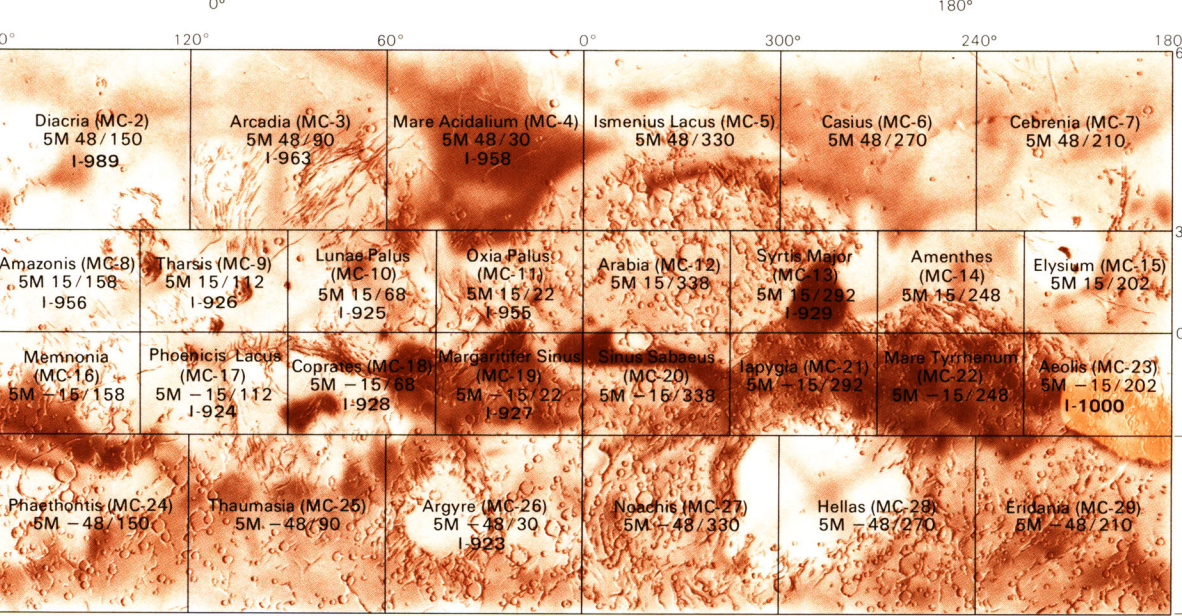
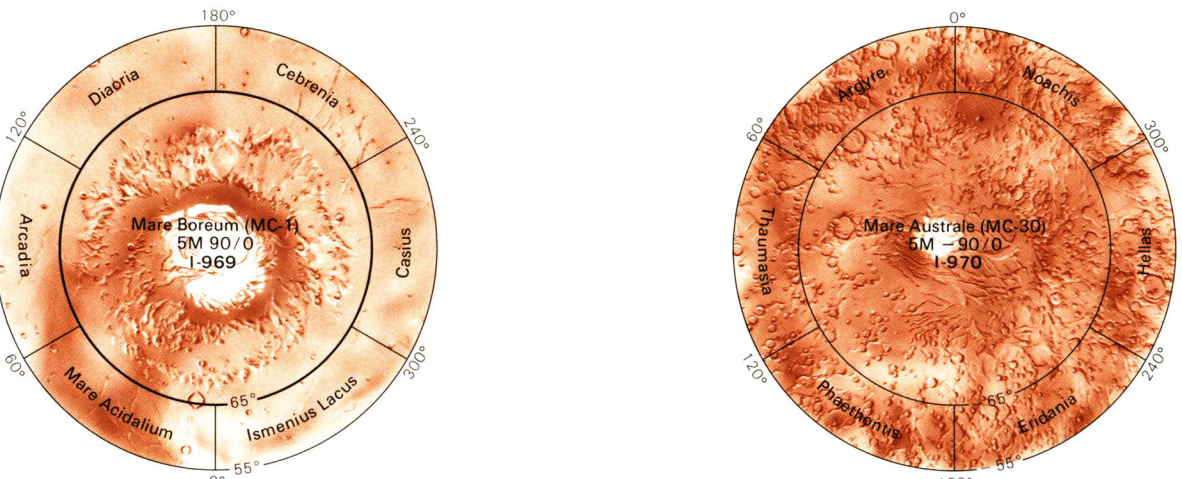
MC-1: Abbreviation for Mars Chart 1.
M 5M 90/0 R: Abbreviation for Mars 1:5,000,000 series, center of sheet, 90° latitude, 0° longitude; shaded relief map, R.

REFERENCES

Bates, R. M., 1973. Cartographic products from the Mariner 9 mission. *Four Geophys. Research*, v. 78, no. 20, p. 4424-4435.
Davies, M. E., 1973. Mariner 9: Primary control net. *Photogramm. Eng.*, v. 39, no. 12, p. 1297-1302.
Davies, M. E., and Arthur, D. W. G., 1973. Martian surface coordinates. *Four Geophys. Research*, v. 78, no. 20, p. 4355-4394.
Inge, J. L., 1972. Principles of lunar illustration. *Aeronaut. Chart and Inf. Center Ref. Pub.*, RP-72-1, 69 p.
International Astronomical Union, Commission 16, 1971. Physical study of planets and satellites, in *Proc. 14th General Assembly, 1970. Internat. Astron. Union Trans.*, v. XIV, p. 128-137.
—, 1974. Physical study of planets and satellites, in *Proc. 15th General Assembly, 1973. Internat. Astron. Union Trans.*, v. XV, p. 105-108.
Levinthal, F. C., Green, W. B., Cutts, J. A., Jabekka, E. D., Johansen, R. A., Sander, M. J., Seidman, J. B., Young, A. T., and Soderblom, L. A., 1973. Mariner 9 image processing and products. *Icarus*, v. 18, no. 1, p. 75-101.
Mausky, Harold, Bates, R. M., Borgeson, W. T., Carr, M. H., McCauley, J. F., Milton, D. J., Willey, R. L., Wilhelm, D. E., Murray, B. C., Horowitz, V. H., Leighton, R. K., Sharp, R. V., Thompson, T. W., Briggs, G. A., Chandrasekhar, P., Shipley, E. N., Sagan, Carl, Follis, J. B., Lederberg, Joshua, Levinthal, F. C., Hartmann, W. K., McCord, T. B., Smith, B. A., Davies, M. E., de Vaucouleurs, G. D., and Leovy, C. B., 1970. Television experiment for Mariner Mars 1971. *Icarus*, v. 12, no. 1, p. 10-45.
de Vaucouleurs, G. D., Davies, M. E., Sturms, F. M., Jr., 1973. The Mariner 9 areographic coordinate system. *Four Geophys. Research*, v. 78, no. 20, p. 4392-4404.



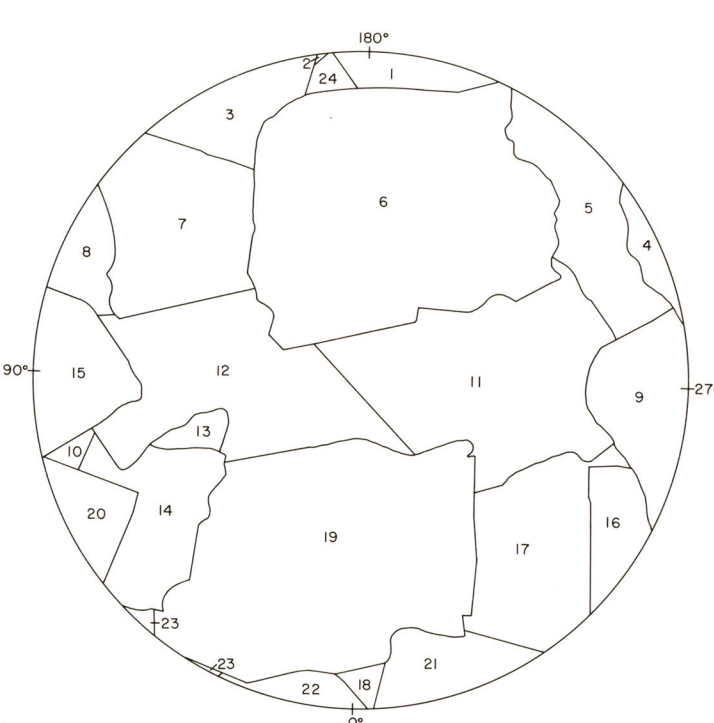
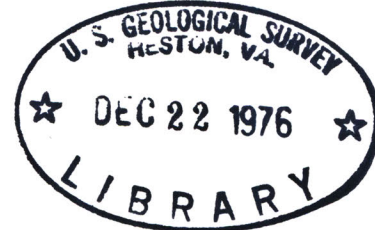
Interior: Geological Survey, Reston, Va. - 1976-G-76065
Prepared on behalf of the Jet Propulsion Laboratory,
California Institute of Technology under contract WO-8122



Albedo: Relative to International Plane.
100: Purely photographic. Lower: Observed.
100: Flagship, 400.

SHADED RELIEF MAP OF THE MARE BOREUM AREA OF MARS

MC-1
M 5M 90/0 R
1976



Index No.	DWG No.	Index No.	DWG No.
1	12102887	11	11681974
2	8014603	14	11681511
3	12285006	15	11680890
4	11800011	16	11448134
5	11800151	17	12538255
6	11377149	18	12284808
7	12562275	19	12013129
8	11627114	20	12102887
9	11622910	21	12164116
10	12028122	22	12102887
11	11622770	23	12102887
12	11681974	24	12102887

INDEX TO MARINER 9 PICTURES
The mosaic used to control the positioning of features on this map was made with the Mariner 9 A-camera pictures outlined above.

For sale by Branch of Distribution, U.S. Geological Survey,
1200 South East Street, Arlington, VA 22202, and Branch of Distribution,
U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225.



Mars (Mare Boreum area). Relief. 1:5,000,000. 1976.
Copied

M(200)
1-969
C.1